auxiliaries directly into the melt, in which context the very good heat stability of the polyacrylates (A) for use in accordance with the invention is advantageous.

5

Likewise in accordance with the invention, however, are acrylically unsaturated polyacrylates (A) prepared in a solvent, or by the abovementioned solvent-free technology, which are obtainable, for example, by

10   reacting (meth)acrylic acid with copolymerized glycidyl (meth)acrylate; in this case, however, it is necessary to be aware of the greater thermal sensitivity during workup and powder compounding.

15   Examples of suitable (co)polymerization processes for preparing the acrylate copolymers (A1) are described in the patents DE-A-197 09 465, DE-C-197 09 476, DE-A-28 48 906, DE-A-195 24 182, EP-A-0 554 783, WO 95/27742, and WO 82/02387.

20

Taylor reactors are advantageous.

Taylor reactors, which serve to convert substances under the conditions of Taylor flow, are known. They

25   consist substantially of two coaxial concentric cylinders of which the outer is fixed and the inner rotates. The reaction space is the volume formed by the

gap between the cylinders. Increasing angular velocity ω_i of the inner cylinder is accompanied by a series of different flow patterns which are characterized by a dimensionless parameter, known as the Taylor number Ta.

5   In addition to the angular velocity of the stirrer, the Taylor number is also dependent on the kinematic viscosity v of the fluid in the gap and on the geometric parameters, the external radius of the inner cylinder r_i, the internal radius of the outer cylinder

10 r_o, and the gap width d, the difference between the two radii, in accordance with the following formula:

$$Ta = \omega_i r_i d\ v^{-1} (d/r_i)^{1/2} \qquad (I)$$

where $d = r_o - r_i$.

15

At low angular velocity, the laminar Couette flow, a simple shear flow, develops. If the rotary speed of the inner cylinder is increased further, then, above a critical level, alternately contrarotating vortices

20 (rotating in opposition) occur, with axes along the peripheral direction. These vortices, called Taylor vortices, are rotationally symmetric and have a diameter which is approximately the same size as the gap width. Two adjacent vortices form a vortex pair or

25 vortex cell.

The basis for this behavior is the fact that, in the course of rotation of the inner cylinder with the outer cylinder at rest, the fluid particles that are near to the inner cylinder are subject to a greater centrifugal

5 force than those at a greater distance from the inner cylinder. This difference in the acting centrifugal forces displaces the fluid particles from the inner to the outer cylinder. The centrifugal force acts counter to the viscosity force, since for the motion of the

10 fluid particles it is necessary to overcome the friction. Any increase in the rotary speed is accompanied by an increase in the centrifugal force as well. The Taylor vortices are formed when the centrifugal force exceeds the stabilizing viscosity

15 force.

In the case of Taylor flow with a low axial flow, each vortex pair passes through the gap, with only a low level of mass transfer between adjacent vortex pairs.

20 Mixing within such vortex pairs is very high, whereas axial mixing beyond the pair boundaries is very low. A vortex pair may therefore be regarded as a stirred tank in which there is thorough mixing. Accordingly, the flow system behaves as an ideal flow tube in that the

25 vortex pairs pass through the gap with constant residence time, like ideal stirred tanks.